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## TWO NEW SPECIES OF *LYRIA* FROM THE WESTERN ATLANTIC (GASTROPODA: VOLUTIDAE)

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### ABSTRACT

*Lyria leonardi* n. sp. and *Lyria russjenseni* n. sp. are described from recently collected specimens obtained in moderate depths off southwestern Puerto Rico. The former species is also known from the Gulf of Triste, Venezuela, and off Grenada in the Lesser Antilles on the basis of fragmental specimens. Both taxa are compared with extant and extinct species of *Lyria* occurring in the Caribbean region.

The volutid genus *Lyria* (*sensu stricto*) is represented in the Tertiary of the western Atlantic region by eight extinct species (Hoerle and Vokes, 1978) and by six extant species, including the two new taxa described herein (Weaver and duPont, 1970; Bayer, 1971). I take pleasure in naming the new species in honor of Fred L. Leonard and Russell H. Jensen, who kindly called my attention to specimens of these taxa and generously donated their respective specimens to the American Museum of Natural History (AMNH) type collection.

The previously known western Atlantic Recent species that have been referred to the nominate subgenus are:

1. *Lyria beauii* (Fischer and Bernardi, 1857), pl. 9, figs. 1, 2; Dance, 1969, pl. 16, fig. c; Weaver and duPont, 1970, pl. 4, figs. 1, J; Pointier, 1981, pl. 1, figs. 1-4; and Abbott and Dance, 1982, p. 213. Type locality: Marie-Galante, Lesser Antilles. Known only from a

few specimens taken in the Lesser Antilles, most recently from off Guadeloupe Island.

2. *Lyria archeri* (Angas, 1865), p. 55, pl. 2, figs. 4, 5; Weaver and duPont, 1970, pl. 7, figs. G, H; Abbott, 1974, p. 245, fig. 2675 (not *L. beauii*); Pointier, 1981, pl. 2, figs. 6-14; Abbott and Dance, 1982, p. 213. Type locality: Montserrat, Lesser Antilles, recently obtained off Martinique (AMNH coll. 183213). R. T. Abbott reports (*in lit.*) that Lesley Sully collected specimens in Guadeloupe in 1969. Dall (1907, p. 351) referred this species to the genus-group taxon *Enaeta* H. & A. Adams (1853, vol. 1, p. 167) in the mistaken belief that the outer lip had similar labial dentition. In *Enaeta*, a blunt, tooth-like projection occurs near the midpoint of the outer lip near the margin of the labrum, (Hoerle and Vokes, 1978, p. 115). In *Lyria archeri*, the edge of the labrum is weakly serrated and pustule-like denticles form at the marginal base of some of the serrations inside the outer lip. These

"teeth" are prominent in the holotype (Weaver and duPont, 1970, pl. 7, fig. H). As Tryon (1882, p. 104) pointed out, however, the shell of *Lyria archeri* somewhat resembles that of the Indo-Pacific *Lyria* (*L.*) *mitraeformis* (Lamarck, 1811). This species apparently is not closely allied to the other living *Lyria* in the Caribbean region.

3. *Lyria vegai* Clench and Turner, 1967, fig. 1; Weaver and duPont, 1970, pl. 6, figs. F, G; Abbott, 1974, p. 245, fig. 2676; Pointier, 1981, pl. 1, fig. 5; Abbott and Dance, 1982, p. 214 (holotype illus.). Type locality: "Cabo Rojo, Prov. Pedernales, República Dominicana, Hispaniola", in a fish trap. Known only from the holotype.

4. *Lyria cordis* Bayer, 1971, figs. 58 (shell), 59 (living animal), 60 (radula), 61 (a, gross anatomy; b, operculum); Abbott, 1972, p. 139 (living animal), Abbott, 1974, p. 245, fig. 2677; Pointier, 1981, pl. 1, fig. 6; Abbott and Dance, 1982, p. 214 (holotype). Type locality: "Caribbean Sea, 20 miles ESE of Sto. Domingo, Island of Hispaniola, 18° 21.0' N, 69° 14.3' W, depth 174 m." Known only from 2 specimens from the type locality. This is the type species of the genus-group taxon, *Cordilyria* Bayer (1971, p. 204). Notwithstanding the fact that axial sculpture occurs only on the first and second post nuclear whorls in the type species (*L. cordis*) as well as in *Lyria vegai*, and axial costae are prominent on the body whorl and the earlier whorls of *Lyria beaultii*, *L. russjenseni* n. sp. and *L. leonardi* n. sp., these five species appear to be more closely related to each other than to *Lyria archeri*. They form a species complex for which the subgenus *Cordilyria* is available, if recognition is subsequently deemed warranted on the basis of anatomical differences with the Indo-Pacific *Lyria*. For the present, *Lyria archeri* seems best retained in *Lyria* (*sensu stricto*).

The New World representatives of the *Cordilyria* species complex occur in moderately deep water in the Caribbean Sea and are rarely found in collections. All the specimens I have examined of the two species described here were dead-collected. Most appear to have been occupied by hermit crabs, which would account for the presence of these shells in baited fish traps. The shells possess one or more octopus drill holes, suggesting that the specimens were the victims of octopus predation.

Family **Volutidae** Rafinesque, 1815

Subfamily **Lyriinae** Pilsbry and Olsson, 1954

Genus ***Lyria*** Gray, 1847

*Lyria* Gray, 1847, p. 141; type species by original designation: *Voluta nucleus* Lamarck, 1811, Recent, Indo-Pacific.

***Lyria leonardi* new species**

Figures 1 to 6

*Lyria beaultii* Fischer and Bernardi, Dall, 1907, p. 351, fragmental specimen, National Museum of Natural History (NMNH) 87718, near Grenada, in 133.5 m. Not *Lyria beaultii* (Fischer and Bernardi, 1857).

*Lyria* cf. *limata* Hoerle and Vokes, Petuch, 1981, p. 331, figs. 75, 76, Golfo de Triste, Venezuela, in 16 m. Not *Lyria* (*L.*) *limata* Hoerle and Vokes, 1978, p. 111, pl. 1, figs. 4, 5, Chipola Formation, Florida, Miocene.

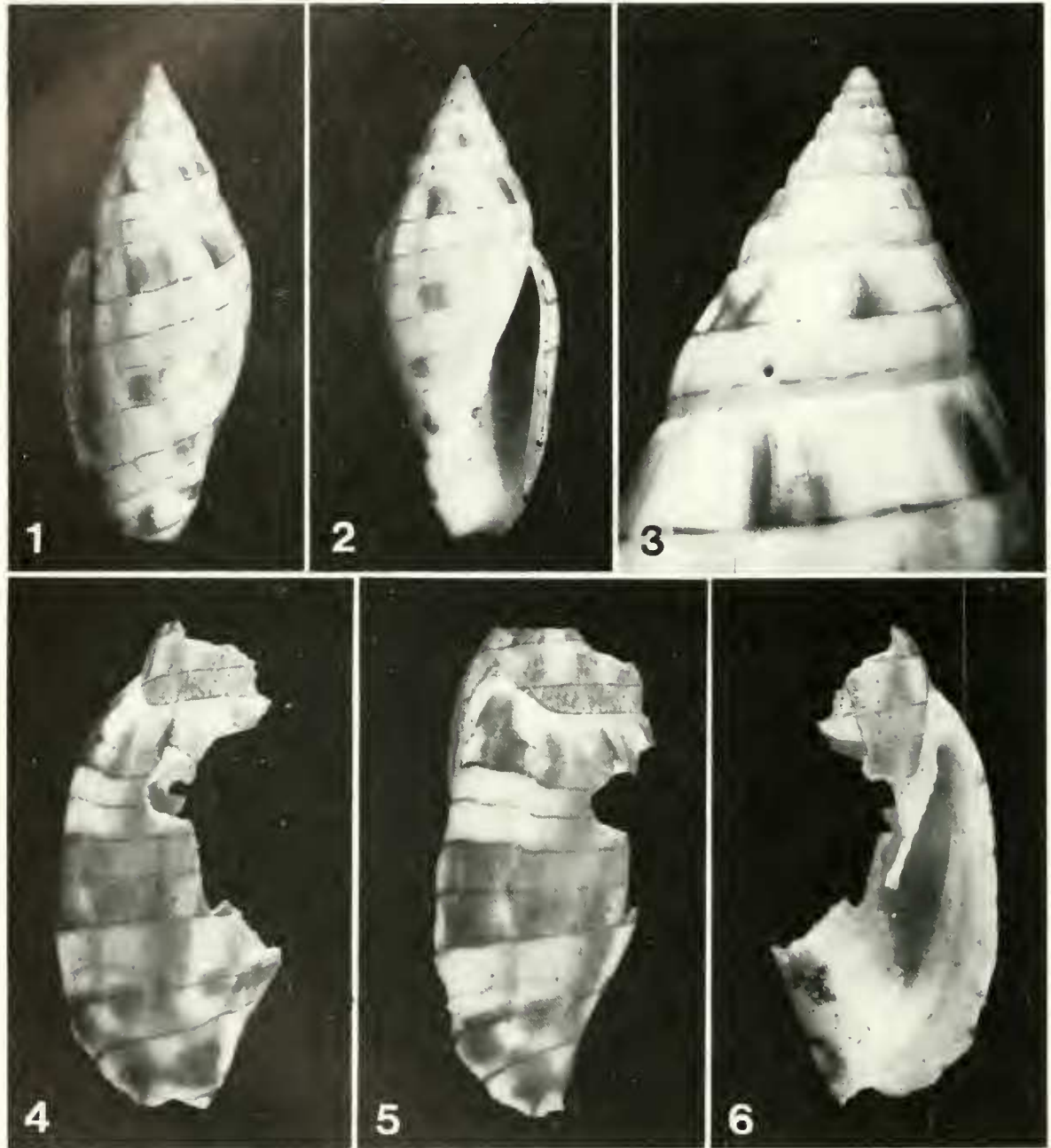
**Diagnosis:** Ovately fusiform shell, large for genus, attaining 100+(?) mm in length, of 8½ whorls; axial sculpture of 11 to 14 weakly folded ribs; color tannish white; spirally banded by irregular squarish blocks of brown below the suture and with 3 similar spiral bands on the body whorl; spirally threaded by 6 to 7 brown, strongly penciled lines on the body whorl, with 1 to 3 similar spiral lines on the earlier post nuclear whorls; aperture whitish with yellowish buff submarginal callus within the outer lip.

**Description:** Shell ovately fusiform; 2½ smooth nuclear whorls; 6 post nuclear whorls; first 3 post nuclear whorls with 14 well-defined axial costae (see Fig. 3); remaining post nuclear whorls with 11 loosely formed axial ribs; suture weakly defined; aperture elliptical, more than ½ the height of the shell; outer lip lacking marginal barbs, thickened internally by a submarginal lenticular callus; columella with 3 prominent adapical plications and 9 thread-like lirations, with the most adapically placed lira best developed; siphonal fasciole weak, anal sulcus shallow; operculum and radula unknown. Color, see diagnosis.

**Type locality:** off Cabo Rojo, Puerto Rico, trawled in 500± m., ex-E. Flynn Ford coll., ex-Fred L. Leonard coll., 1981.

**Holotype:** AMNH no. 213575, from the type locality; height = 52 mm, width = 21.2 mm. Here illustrated, Figs. 1, 2 and 3.

**Paratype:** NMNH no. 820640, R/V *John*



FIGS. 1-6. *Lyria leonardi* new species. 1-3, Holotype, AMNH no. 213575; 4-6, Paratype, NMNH no. 820640. 1 and 2 approximately  $\times 1\frac{1}{2}$ ; 3, early whorls greatly enlarged; 4-6,  $\times 1$ .

*Elliott Pillsbury* station P-758 (11° 42.4' N., 60° 40' W), in 16 m., Golfo de Triste, Venezuela (see Petuch, 1981, p. 331, figs. 75-76); fragment lacking pre-body whorls, height = 72.00 mm. Here illustrated, Figs. 4-6.

*Referred specimen*: NMNH no. 87718, U.S. Fish Commission station 2120, in 133.5 m, near Grenada, Lesser Antilles (see Dall, 1907, p. 351); fragment lacking much of the body whorl, height = 29.3 mm.

*Remarks*: The color pattern approaches that of *L. limata* Hoerle and Vokes (1978, pl. 1, figs. 5a, 5b), but this smaller, more slender Miocene species has better developed costae, stronger and fewer columellar lirations, and possesses barbs on the outer lip.

### *Lyria russjenseni* new species

Figures 7 to 15

*Diagnosis*: Shell narrowly fusiform, 8½ whorls, medium size for genus, attaining 70+ mm in height; axial sculpture of 12 to 13 irregularly formed ribs; color buff-cream with small v-markings, spirally banded by broken blotches of irregular brown squares below the suture, midway and anteriorly on the body whorl; bands interrupted by zigzag patterns, especially at base of the body whorl; outer lip ringed within by a yellowish buff, submarginal callus; aperture white.

*Description*: Shell slender, fusiform; 2½ smooth nuclear whorls; 6 post nuclear whorls; axial costae 12 to 13 per whorl, weakly developed on 1st and 2nd post nuclear whorls (see Fig. 15); obsolete on 3rd and 4th whorls; prominent on penultimate whorl and body whorl; suture distinct, weakly channeled; aperture narrowly elongate, about ½ the height of the shell; interior of outer lip thickened submarginally by a lenticular callus in mature specimens, lacking marginal barbs; columella with 3 prominent adapical plications and 12 to 17 weak lirations extending into the aperture, terminating in a more prominent lira at the adapical end in mature specimens. Siphonal fasciole weak; anal sulcus narrow and shallow; operculum and radula unknown. Color, see diagnosis.

*Type locality*: off La Paguera, Puerto Rico, taken in a lobster pot by fisherman, 1978, ex-Miguel Carlo, ex-Russell Jensen coll.

*Holotype*: AMNH no. 213576, from the type

locality; height = 65.5 mm, width = 26.2 mm. Here illustrated, Figs. 7, 8.

*Paratype A*: off Cabo Rojo, Puerto Rico, in a fish trap, in approximately 244 m., ex-Miguel Carlo, 1983, Harry G. Lee coll.; height = 71.5 mm, width = 28.8 mm. Here illustrated, Figs. 9, 10, and 15.

*Paratype B*: off Cabo Rojo, Puerto Rico, in a fish trap set 8 to 10 miles off shore in approximately 300 m., mid-1979, ex-Miguel Carlo, Gregory Curry Sr. coll.; height = 39.4 mm, width = 17.2 mm.

*Paratype C*: AMNH no. 213574, same locality as paratype B, ex-Miguel Carlo, 1979, ex-Richard Goldberg coll.; height = 26.8 mm, width = 13.4 mm. Juvenile specimen, here illustrated, Figs. 13, 14.

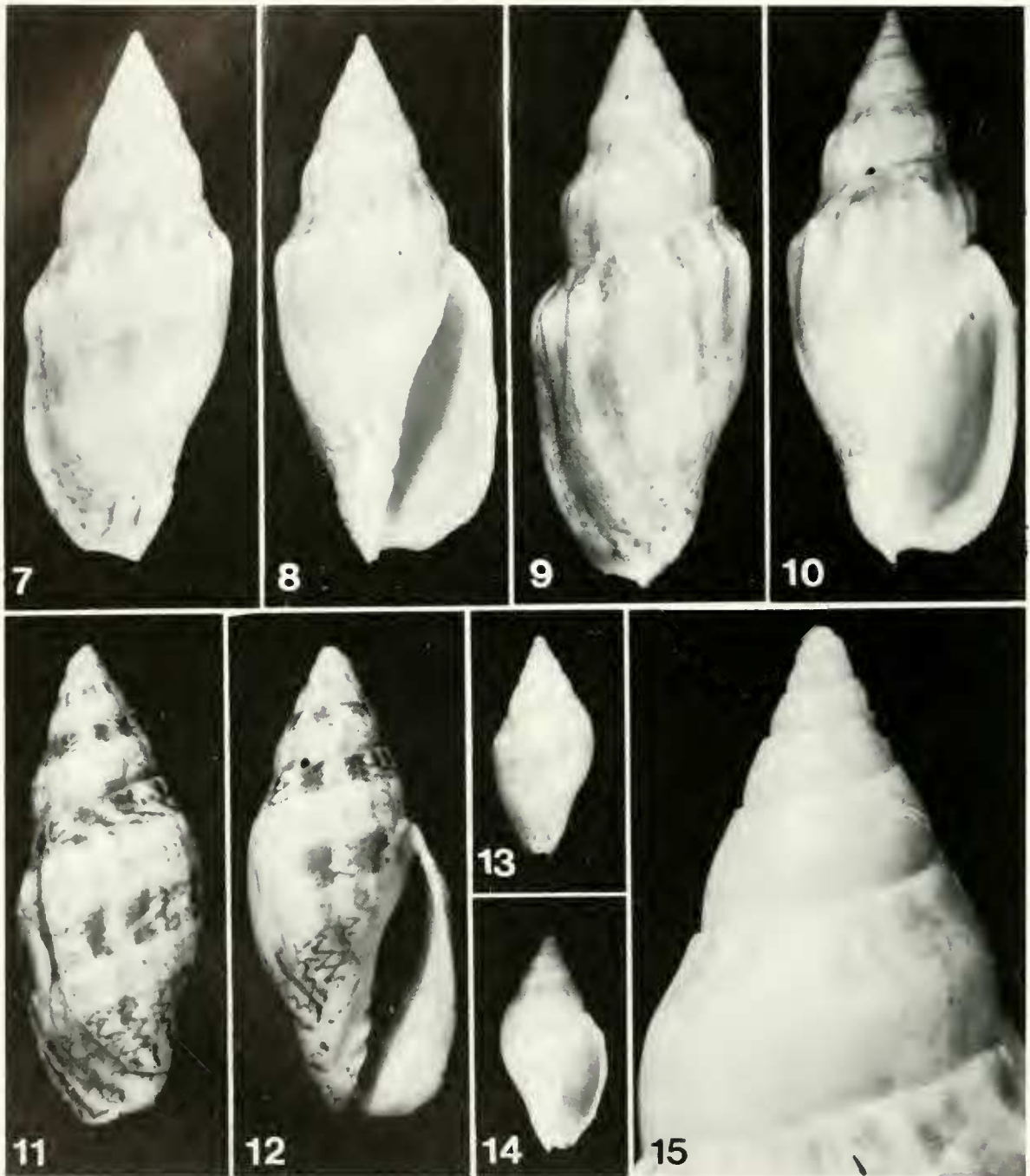
*Paratype D*: same locality as paratype B, ex-Miguel Carlo; Gregory Curry, Sr. coll.; height = 57.7 mm (apex incomplete), width = 25.4 mm. Here illustrated, Figs. 11, 12.

*Paratype E*: off Mayaguez, Puerto Rico, in a fish trap, set in 274 m; ex-Miguel Carlo, 1982, Michael Cahill coll.; height = 56 mm, width = 24 mm.

*Remarks*: This species resembles *L. beauii* (Fischer and Bernardi, 1857) in shell morphology, but it differs in having less extended axial ribs on the body whorl, and a distinctive color pattern. In *Lyria leonardi* n. sp. the axial ribs adjoin the suture, whereas in the present species and *L. beauii* the ribs are poorly developed at the suture in mature specimens (Figs. 7-10).

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FIGS. 7-15. *Lyria russjenseni* new species. 7 and 8, Holotype, AMNH no. 213576; 9, 10, 15, Paratype A, H. G. Lee coll.; 11 and 12, Paratype D, G. Curry, Sr. coll.; 13 and 14, Paratype C, AMNH no. 213574. 7-14 approximately  $\times 1\frac{1}{3}$ ; 15, early whorls greatly enlarged.

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